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Relativistic kinetics and cosmology. I

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Abstract

A study is made of the problem of describing the cosmological expansion of a plasma in the framework of Chernikov's relativistic kinetic theory. It is shown that from the point of view of relativistic kinetics there are two stages in the evolution of the Universe in which thermodynamic equilibrium of the plasma is attained asymptotically: 1) the earliest ultrarelativistic stage, and 2) the nonrelativistic stage of the expansion, when the radiation is decoupled from the matter. It is shown that the relativistic kinetics of the plasma expansion at the time of decoupling of the radiation from the matter leads to transfer of energy from the photon component of the plasma to the electron component.

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